MINISTRY OF INTERGOVERNMENTAL AFFAIRS

LOCAL GOVERNMENT DIVISION

BULLETIN NO. 20

MICRORECORDING

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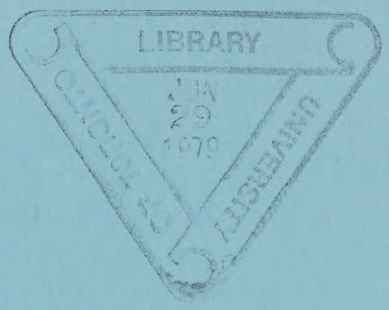
To the Municipal Clerk:

Please circulate this bulletin or make copies for distribution to councillors or staff of your municipality who may be interested in the subject. Additional copies are available at fifty cents each from the Publications Centre (see page 16).



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INTRODUCTION

Microrecording is a process by which information, in paper form, can be quickly reduced to "little pictures" on microfilm. You can imagine how this can help you, especially if your records are crowding you out of your office.

If you have never seen a microfilm system in operation, you probably have a number of questions about what it can do.

The intent of this bulletin is to make the reader more aware of the world of microrecording. It will describe the different kinds of microforms available and their specific application. The kinds of microfilmers as well as microfilm readers will also be outlined, along with their application to a municipal operation. The components of a feasibility study, to assess whether microfilming is for you, will also be discussed. Lastly, a short section on the admissibility of microfilm, in place of originals, in a court of law will be discussed since it is an area of particular interest to all municipalities.

If you have been considering microfilming for your municipality, this bulletin may be of assistance in understanding what its advantages and disadvantages are and what you might think about before you either buy the equipment or engage a service bureau.

WHAT MICROFILM CAN DO

A microfilm system is more than just a lot of "little pictures". The system involves a way of filming information so efficiently that you can find any record, even among thousands, in seconds. It's also a way of keeping valuable records from being lost or destroyed. It's a way of storing the film once the microfilming is done. It's also a way of keeping related records together for instant reference, a way to answer enquiries quickly and accurately, a way to keep track of financial records and accounts as well as a way to update current information faster and more easily than may have ever been done before. For those operations using a computer, a microfilm system offers ways to handle computer output more efficiently and in a fraction of the time needed with paper records.

And on top of all these advantages, a microfilm system can save you money on labour, floor space, and mailing costs, just to name three.

Even though there are several advantages to microrecording, it may not be important for your operation. Initial capital costs can be high. Training costs can also be extensive in the initial instance. But above all, you may not have a records-management problem and no matter how much the system costs, it is not for you. Care should always be exercised before embarking on a microfilming program in your municipality.

WHAT COMPRISES A BASIC MICROFILM SYSTEM?

There are four basic operations in a microfilm system; namely, the microfilming of the document, the processing of the film, the filing or storing of the microform and, lastly, the retrieving of the information on the film.

To explain each operation and describe the different kinds of equipment involved in each operation, let's break the typical system into these four basic operations. But since microforms are basic to the whole microfilming system, let's discuss them first.

What Are the Different Kinds of Microforms?

A wide variety of user needs has given rise to a number of different "forms" in which microfilm is made, stored and used. These "forms" are roll microfilm, roll-film cartridges and cassettes, microjackets, microfiche, and aperture cards. Each has a range of applications designed to fulfill specific user requirements.

1) Roll Form

Most microfilm operations use this roll-film form, in either 16 mm or 35 mm widths. It is specifically applicable to operations where information is added continuously in sequence and where updating is infrequent. The 16 mm width, which is the most popular, is primarily used for filming correspondence, cheques, and other similar information. The 35 mm width is used primarily for filming of graphics and large documents such as engineering drawings, newspapers and maps.

2) Cartridges or Cassettes

Roll film can be transformed and housed into cartridges or cassettes. The cartridges and cassettes themselves act as labelled filing units, protecting the film from foreign matter, and, most important, providing faster access to its contents, because it self-threads in the reader. The cassette has the

added advantage of not having to be rewound when it is removed from the reader. Any frame may be held in viewing position for further reference at a later time.

3) Jackets

This microform involves inserting roll film into pre-cut channels on a transparent jacket. These jackets usually come in a variety of sizes to suit the job. It offers a neat, easy way of keeping consecutive history records, such as welfare records by individuals, that need to be continuously updated.

A great amount of information can be put on one jacket. For instance, the popular-size jacket, 4 x 6 inch (100 x 150 mm), has room for as many as 70 images of letter-size documents, and a hundred jackets are only one inch thick.

These jackets can accept both 16 mm and 35 mm strips, even on the same card.

4) Microfiche

Similar to the jacket is the microfiche which is a sheet of microfilm, 105 mm wide, containing multiple microimages in a grid pattern. A 4 x 6 inch (100 x 150 mm) microfiche, the standard size, contains 98 images, but is capable of up to 500 depending on the degree of reduction. This microform generally is ideal for mass distribution of such things as research materials or monthly reports and is particularly of interest to provincial and federal agencies. Its application would be minimal in most municipalities. It also requires specialized, usually very expensive, microfilm cameras.

5) Aperture Cards

The aperture card is a key-punch card in which a rectangular window has been cut. A microfilm image is mounted in such a way as to cover this window or aperture. Both 16 mm and 35 mm film can be used. Aperture cards are commonly used for such large documents as engineering drawings, road plans, standards and maps. It would have direct application in the municipal engineering or planning office. It has the advantage that each plan or map or document is on its own card and can be located without the use of a "reader".

Microfilming Documents

Documents are microfilmed using one of three different kinds of cameras - the rotary, the planetary or step-and-repeat planetary, or the computer output microfilmer (C.O.M.). The rotary camera can only produce roll film, the planetary can produce roll or microfiche and the C.O.M. can only produce microfiche.

a) Rotary Camera

This camera is the most widely used. It usually sits on an ordinary table or desk and documents are fed into it for filming. The largest document that can be filmed on a rotary camera is the standard letter. This camera is ideal for filming cheques or tab cards as well as correspondence. Automatic feeders can be added enabling up to 200 letter-sized documents or 640 cheques to be recorded in one minute.

b1) Planetary Camera

In this process, the documents are placed on a flat surface, positioned and then filmed by an overhead camera. Each document must be removed before the next can be filmed. This camera enables the filming of large documents, such as engineering drawings and maps as well as hard-bound books, such as council minutes, ledgers and assessment

rolls. An available feature is an adapter that enables reduction to be varied to reduce different sized subjects to the same size on the film. Both 16 mm and 35 mm can be used in these cameras.

b2) Step-and-Repeat Planetary Cameras

These cameras create microfiche by exposing a series of separate images on an area of film according to a predetermined grid. Its major application is where one may wish to update the microfiche from time to time. These cameras are very expensive but have this update feature which is perfect for filming current records. Its use, however, would probably be limited in municipalities because the microfiche it produces may have limited municipal use.

c) Computer Output Microfilmer (COM)

This recorder converts the data on a computer magnetic tape directly to microfilm, eliminating the paper printout step. It can microfilm at speeds up to 120,000 characters per second. It is primarily used in such computerized systems as accounts payable, tax billing or other computerized activities. It is very costly and probably of limited value except for the largest of municipalities.

For most municipalities, the rotary or the planetary camera would be best. If you are microfilming for security and space-saving reasons and are using documents that are letter size or smaller, perhaps the rotary would suffice. Planetary cameras are best for filming oversized documents such as maps and engineering drawings and for filming historical documents that may be already bound in book form such as council minutes, by-laws and the accounts ledgers. In either case, the surest way to choose the right camera is after a feasibility study has been completed.

Processing Film

After the filming is completed, the film must be processed. There are three ways in which the processing can take place.

1) You can process the film on your own premises with a microfilm processor that your regular personnel can operate without special training or dark-room facilities.

2) You can attach a processing unit directly to the camera which readily accepts and immediately processes the exposed film from the same cartridge used in the microfilmer, or

3) You can send the film to a commercial processor who would not only process the film for you but also produce any number of duplicates you may wish.

Any of the three ways work equally well for either the rotary or planetary camera, if they produce roll film. Your feasibility study again will assist you in making the choice.

If you produce microfiche, however, the processing of the film is incorporated into the microfilmer and is done on site.

Filing of Microforms

Of the four basic operations of a microfilm system, the filing operation is the easiest. It literally involves placing the finished product in a suitable location that enables the user to find it quickly when necessary. This operation is made easy because each of the finished films is identified by some letter or number that describes generally what is on the film. The film is therefore usually filed by these letters or numbers.

Manufacturers have designed specialized equipment to store the film, particularly the roll film. There are relatively inexpensive products like the desk-top units, more expensive carousel-type units, and the most expensive motorized bin-type units. With the selection, the only real concern is the cost. To economize, some users have adopted the upright letter-sized file drawers to house the film. Although this is functional at the beginning, the users usually end up purchasing the specialized units.

In the case of microjackets, aperture cards and microfiche, they can be filed in a standard card drawer manufactured for that purpose. These cards are usually of standard size and are readily available from the suppliers.

Retrieving Information

Finding information on any microform requires two completely different processes. The first process involves coding the film as it is being produced and the second involves the use of optical readers to read the material once the particular piece of information is located.

In the case of microfiche, jackets and aperture cards, this process is straightforward. Each of these microforms has spaces on it to write identifying codes. Retrieving information only requires a visual search and then the use of a reader.

In the case of roll film, however, the process is not as straightforward. Although each roll or cartridge has identifying letters or numbers to indicate what is generally on the film, the trick is to actually select the single image from hundreds or even thousands on the film.

There are a number of techniques that are used to code the film as documents are being microfilmed. Each technique can be easily learned and is usually demonstrated as part of the training program that accompanies the purchase of equipment from the supplier. The technique you choose will depend directly on the circumstances in your offices. The following are some of the techniques that can be used:

Flash Cards

One way is to photograph the actual identifying cards, with their large numbers or letters, right onto the microfilm. The card images are preceeded and followed by dark spaces. As the film travels in the reader and the spaces flash on the screen, the operator looks for the number or letter signalling the sought-for group of images, which he then reviews for specific information.

Code Lines

Another method is automatically exposing horizontal lines on the film at escalating positions between the images. When seen on the reader screen, the lines rise or fall as the film advances or rewinds. The horizontal lines identify groups of images on the film. The operator selects the group by advancing or rewinding the film to the pre-determined lines. From the group, the operator selects a particular image.

Sequential Numbering

Another way is to stamp sequential numbers on the documents automatically as part of the microfilming operation. Those numbers appear on the reader screen, enabling the operator to pinpoint images.

Other Methods

Two sophisticated methods, which require specialized equipment, are also available. The first is the use of image control etched electronically on the film and the other is to use binary code patterns. These two methods are only listed to show the level of sophistication that the science of microrecording has reached. A full explanation of those two techniques is available from the manufacturers. Because of their very specialized nature, these two methods may have very limited application in most municipalities.

A variety of optical readers are available for viewing microforms. The choice will depend upon the environment in which they will be used, the users' needs, the specific microform system in use, and the cost. Basic types of readers are:

Lap Readers - designed for compactness and personal use. At the present time these may be only available as microfiche readers.

Portable Readers - designed to be inserted or folded into a case similar to a portable typewriter case. Indicative of their portability, most lap and portable readers offer the option of AC, battery or 12 volt (through a car's cigarette lighter) operation.

Desk Reader - designed for use on a desk, table, or stand.

Free-Standing Units - designed to stand alone as self-contained units.

Most manufacturers also offer a list of accessories such as extra lenses, floor stands, combination stands and microform storage units, adapters for other types of microfilm, etc. The number of operating features, controls, and accessories of any unit is directly related to its intended functions and of course affects the final cost.

There are also reader-printers available that not only allow viewing but also the producing of occasional hard-copy reproductions from a microform. Enlarger-printers are also available; however, these are generally not used for viewing but rather for producing high volumes of hard copy.

When only a few copies of a document are needed, a low-cost, low-volume reader-printer may suffice. When many copies are needed, a high-volume unit may be required. Reader-printers can accommodate and print out documents in any size up to 420 mm x 594 mm (18" x 24"). Enlarger-printers can produce in sizes up to 594 mm x 841 mm (24" x 36").

Most reader-printers use coated papers in the printing process. The cost of supplies will vary with the manufacturer, the usage volume and the process. The cost of supplies is only one cost factor in the finished print cost. Additional costs may be incurred in renting, preventive maintenance and depreciation of the equipment.

FEASIBILITY STUDY

Before purchasing equipment and setting up a microfilming operation, a municipality should undertake a feasibility study. This study will identify not only the kind of equipment necessary, but also the kinds of records to be microfilmed, the reason for microfilming, whether in-house or service bureaux should be used, and the costs of the system in terms of capital and operating expenses. It should also outline where the microfilm unit should be located organizationally. The following is a list of the major elements of a feasibility study. It may be too extensive for your specific needs but is presented to show the range of questions that could be asked. Those areas that specifically apply to your needs should be pursued.

List of Feasibility Factors

a) Terms of Reference

i) What will the study accomplish?

ii) How will it fit into the municipality's current records-management program?

iii) Who will do the study?

iv) What are the time factors?

v) Who may be potential users?

b) Legislation

i) What provincial and federal legislation affects microfilm, if any?

ii) What are the experiences of other municipalities or local governments?

c) Records Management Considerations

i) What is the purpose of microfilming for you, i.e., preserve vital records, save space, document history of municipality, etc?

ii) Can the present system be converted?

iii) If no, what parts can?

iv) Are your present files in good enough shape for microfilming?

v) Is the security of records important?

vi) Are forms required?

vii) If so, how many different kinds?

viii) What happens to the originals?

ix) Should the Archives of Ontario be notified before disposing of originals?

x) What is the growth factor in your records annually?

d) Standards

i) What standards of quality control, film life, security, etc. do you wish to achieve?

ii) Are other standards necessary?

e) Equipment Considerations

i) Evaluate the different kinds of hardware available. What are their features? Which features are relevant to your operation? How good is the service from the supplier? Can the hardware be updated easily? What is the cost of the unit? Should the equipment be rented?

ii) Evaluate the different kinds of software, i.e., roll, card, fiche. Is the municipality interested in more than one microform?

iii) What kinds of other equipment are needed? i.e., storage of film, readers or reader-printers, office furniture etc.

iv) Do you have special needs such as the filming of coloured documents, maps, plans?

f) Systems Consideration

i) What kind(s) of system(s) is/are to be designed to implement microfilming?

ii) What indexing and coding system is to be used?

iii) Should the system be flow-charted and tested before implementation?

g) Organization

i) Where will the microfilm unit be located organizationally?

ii) Are there organizational changes needed?

iii) Who will be the users and will their organization or administrative practices be affected?

h) Management Requirements

i) What is the cost of the current system versus the cost of the new system?

ii) What is the cost of an in-house versus service-bureau operation?

iii) What funds will be required? Are they in the current budget?

iv) Will staff increase or decrease?

v) Is retraining necessary? What will be the cost?

vi) Is space currently available for the microfilm operation? If not, where will it be located?

vii) What is the opinion of your solicitor and auditor, if necessary?

viii) Has a committee of council supported the recommendations?

ix) Has council approved the operation?

x) How will council be kept informed of the operation?

MICROFILM IN COURTS OF LAW

The admissibility of microfilm, in place of the original, as evidence in a court of law is still not clear. However it appears as if microfilmed documents and copies thereof would possibly be admissible as evidence in place of originals by virtue of section 35(1) of The Ontario Evidence Act. There are three criteria which must be satisfied to have microfilm admitted under this section. Firstly, the microfilmed document must fall within section 35(2) of The Ontario Evidence Act, secondly, the filming procedure and the destruction period must be followed and verified and thirdly, the document which was microfilmed would have to have been admissible. To meet the second criteria, the municipality should have the following:

1) A Declaration of Intent and Purpose, stating that the records were created during the normal course of business and that the microfilm was created with the intention of disposing of the original records;

2) A Certificate of Authenticity, stating the roll started with such and such an item and ended with such and such an item, are accurate and complete reproductions of the records of such and such a department and that the microphotographic process met with certain standard requirements;

3) An Affidavit of Destruction (resulting from the implementation of the municipal retention by-law) stating that such and such documents were in fact destroyed and the person carrying out the instruction was an employee of the municipality holding the records.

Even if these measures are taken, it is not certain that microfilm will be accepted as evidence in the courts in place of the original documents. Apparently, no case law to establish this point yet exists. To be safe, legal advice should always be obtained when contemplating the destruction of original documents.

CONCLUSION

Since microrecording can help solve many problems, from lack of storage space to protection of historical records, it has often been considered as a technique that can solve all our records-management problems. No matter how appealing it may sound, microrecording must not be considered in isolation from your total records-management program. At best, it should only be considered a tool to ensure that the records are managed in an effective and efficient manner.

Before embarking on any program involving micro-filming, the critical question to ask is - "How does this system fit into my whole records-management program?" The most effective way to answer this question is to conduct a feasibility study, since it will determine whether you need a microfilm operation at all as well as the kinds of equipment that can best suit your individual requirements.

This bulletin was prepared in the:

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